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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP
100 GALLERIA PARKWAY, NW
STE 1750
ATLANTA, GA 30339-5948

EXAMINER

TO, BAOQUOC N

ART UNIT

PAPER NUMBER

2172

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/653,827

Applicant(s)

RASMUSSEN, GLENN D.

Examiner

Baoquoc N To

Art Unit

2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

1. Claims 1-44 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 35 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner et al. (US. Patent No. 5,550,971) in view of Pouschine et al. (US. Patent No. 5,918,232).

Regarding on claims 1, 35 and 43-44, Brunner teaches metadata model transformer for transforming a metadata model, the metadata model having a lower layer containing one or more lower abstraction model objects having a lower abstraction level and a higher layer containing one or more higher abstraction model objects having a higher abstraction level, the transformer comprising:

a lower-to-higher transformation having:

means for obtaining information of a lower abstraction model object from the lower layer [col. 5, lines 26-29].

means for abstracting the information by adding business intelligence [col. 5, lines 51-55]; and

means for creating in the higher layer a higher abstraction model object corresponding to the lower abstraction model object [col. 15, lines 28-31].

Although, Brunner does not explicitly teaches business intelligence; however, Pouschine teaches, "the DOLAP architecture utilizes a rule-based methodology which provides strong business modeling capability" [col. 11, lines 49-50]. This teaches the usage of rule-based to build model. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Pouschine into Brunner in order to provide a computer modeling system and method which allows the user to easily review the formulas and rules which are the basic for calculations of model values

Regarding on claim 2, Brunner teaches metadata model transformer comprising:
a lower layer transformation having:

means for obtaining information of a lower abstraction model object from the lower layer [col. 5, lines 26-28];

means for modifying the obtained information [col. 19, lines 7-9]; and

means for transforming the lower abstraction model object based on the modified information [col. 19, lines 9-11].

Regarding on claim 3, Brunner teaches metadata model transformer comprising:
a lower layer transformation having:

means for obtaining information of a lower abstraction model objects from the lower layer [col. 5, lines 55-67];

means for determining a specific feature included in the obtained information [col. 5, lines 55-65]; and

means for creating a new lower abstraction model object based on the specific feature [col. 6, lines 10-32].

Regarding on claim 4, Brunner teaches metadata model transformer comprising:
a lower layer transformation having:

means for obtaining relationship information between multiple lower abstraction model objects from the lower layer [col. 5, lines 51-55]; and

means for creating a new lower abstraction model object based on the relationship information [col. 5, lines 55-67 and col. 6, lines 1-9].

Regarding on claim 5, teaches metadata model transformer as claimed in claim 1 further comprising:

a higher layer transformation having:

means for obtaining information of a higher abstraction model object from the higher layer [col. 5, lines 36-38];

means for modifying the obtained information [col. 19, lines 7-9]; and

means for transforming the higher abstraction model object based on the modified information [col. 19, lines 9-11].

Regarding on claim 6, Brunner metadata model transformer as claimed in claim 1 further comprising:

a higher layer transformation having:

means for obtaining information of a higher abstraction model objects from the higher layer [col. 5, lines 25-28];

means for determining a specific feature included in the obtained information [col. 5, lines 45-50]; and

means for creating a new higher abstraction model object based on the specific feature [col. 15, lines 28-31].

Regarding on claim 7, teaches a metadata model transformer further comprising:

a higher layer transformation having:

means for obtaining relationship information between multiple higher abstraction model objects from the higher layer [col. 5, lines 36-67]; and

means for creating a new higher abstraction model object based on the relationship information [col. 5, lines 55-67].

Regarding on claim 8, Pouschine teaches metadata model transformer further comprising:

a higher layer transformation having:

means for selecting a subset of the higher abstraction model objects from the higher layer [col. 11, lines 62-67]; and

means for creating a new higher abstraction model object based on the selected subset of the higher abstraction model objects [col. 11, lines 49-61].

3. Claims 9-21, 24-33 and 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pouschine et al. (US. Patent No. 5,918,232) in view of Mellen-Garnett et al. (US. Patent No. 6,094,688).

Regarding on claims 9 and 36, Pouschine teaches a metadata model transformer for transforming a metadata model that represent one or more data sources having physical data, the metadata model having a data, access layer containing data access model objects, a business layer containing business model objects, and a package layer containing package model objects, the transformation comprising:

one or more data access model transformations for refining description of the physical data in the data source expressed by the data access model objects [col. 11, lines 19-27];

one or more data access to business model transformations for constructing business model objects based on the data access model objects [col. 11, lines 49-61];

one or more business model transformations for refining the business rules expressed by the business model objects [col. 12, lines 1-8]; and

one or more business to package model transformations for constructing package model objects based on the business model objects [col. 14, lines 20-23].

Although, Pouschine does not explicitly teach the refining the business rules; however, Mellen-Garnett teaches, "the business encapsulation module provides a screen to filter such records and only provides those appropriate records as object to the application collaboration module having a business rule (stored in the set of rules 1330) which filters such record" [col. 20, lines 3-7]. This teaches the business modules filter these records by refined rules. Therefore it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Mellen-Garnett into Pouschine in order to allows businesses to significantly improve efficiency and productivity by integrating related functionality and efficient resource management at the collaboration level by proxy execution of compensating transaction and filtering at the source.

Regarding on claims 10 and 37, Pouschine teaches the data access model transformations refines the description by adding new data access model objects to data access model objects which are constructed via import from the data sources or one or more metadata sources [col. 10, lines 64-67].

Regarding on claims 11 and 38, Mellen-Garnett teaches the business model transformations refines the business rules by changing the business model objects [col. 20, lines 3-7].

Regarding on claims 12 and 39, Pouschine teaches the business model objects include business model objects which are constructed via import from one or more metadata sources [col. 11, lines 51-58].

Regarding on claims 13 and 40, Pouschine teaches metadata model transformer further comprising:

one or more package model transformations for constructing a new package layer based on the package model objects in the model [col. 11, lines 51-58].

Regarding on claims 14 and 41, Pouschine teaches the package model objects include package model objects which are constructed via import from one or more metadata sources [col. 14, lines 20-23].

Regarding on claims 15 and 42, Pouschine teaches metadata model transformer further comprising: a name mutation transformation for changing names of objects in the model based on user defined rules [col. 14, lines 20-24].

Regarding on claim 16, Pouschine teaches the data access model transformations include a transformation which creates a new data access model object based on the data access model objects contained in the data access layer [col. 10, lines 64-67].

Regarding on claim 17, Pouschine teaches the data sources contain tables having columns and indexes [col. 7, lines 1-3]; the data access model objects include data access tables, data access columns and data access indexes which respectively describe information about the tables, columns and indexes in the data sources; and the data access model transformations include a data access join constructing transformation for constructing a data access join between data access tables based on the data access indexes [col. 7, lines 53-57].

Regarding on claim 18, Pouschine teaches the data sources contain tables having columns and indexes [col. 7, lines 1-3]; the data access model objects include data access tables, data access columns and data access indexes which respectively describe information about the tables [col. 7, lines 53-57], columns and indexes in the data sources; and the data access model transformations include a data access key constructing transformation for creating a data access key for a data access table based on the data access indexes [col. 14, lines 42-45].

Regarding on claim 19, Pouschine teaches the data sources contain at least one of tables having columns and indexes, views having columns or files having columns or fields:

the data access model objects include at least one of data access tables, data access views, data access files, data access columns and data access indexes which respectively describe information about the tables, columns of the tables, indexes of the tables, the views, the columns of the views, the files, and the columns or fields of the files in the data sources [col. 12, lines 40-44]; and the data access model transformations include a table extract constructing transformation for constructing a table extract based on the data access tables, the data access views and the data access files [col. 11, lines 1-2].

Regarding on claim 20, Pouschine teaches the data access model objects include one or more logical cube, each of which defines a multidimensional space represented in a number of physical storage formats [col. 11, lines 62-67]; and

the data access model transformations include a data access cube constructing transformation for constructing data access cubes to instantiate the multidimensional space defined by each logical cube [col. 11, lines 49-61].

Regarding on claim 21, Pouschine teaches the data access to business model transformations include a basic business model constructing transformation which obtains information about a data access model object in the data access layer, and create a business model object corresponding to the data access model object [col. 11, lines 49-61].

Regarding on claim 24, Pouschine teaches the business model objects include one or more redundant joins that express the transitivity of two or more other join relationships in the business layer; and

the business model transformations include a redundant join relationship eliminating transformation for locating the redundant joins, and eliminating the redundant joins from the business layer [col. 11. lines 48-61].

Regarding on claim 25, Pouschine teaches the business model transformations include a subclass relationship introducing transformation for introducing a new entity (element) with a subclass relationship into the business layer [col. 10, lines 47-67].

Regarding on claim 26, Pouschine teaches the business model objects include an entity acting as a lookup table with respect to the other entity, and a business join between the entities, the business join is an associate type [col. 4, lines 26-31]; and the business model transformations include an entity referencing transformation for locating the entity acting as a lookup table, and changing the business join which is an association type to a business join which is a reference type [col. 7, lines 53-57].

Regarding on claim 27, Pouschine teaches the business model transformations include an attribute usage determining transformation for determines the usage of an attribute based on how it is used by other business model objects [col. 11, lines 19-27].

Regarding on claim 28, Pouschine teaches the business model transformations include a date usage identifying transformation for examining attributes to determine where dates are used in the attributes [col. 11, lines 19-27].

Regarding on claim 29, Pouschine teaches the business to package model transformations include a basic package model constructing transformation for constructing a package layer by forming a package with package model objects which corresponds to a subset of the business model objects [col. 11, lines 63-67].

Regarding on claim 30, Pouschine teaches the package model transformations include a special package construction transformation for constructing a specific package which is usable by a specific client application from a generic package [col. 14, lines 20-24].

Regarding on claim 31, Pouschine teaches one or more multidimensional model transformations for a multidimensional model [col. 11, lines 54-58].

Regarding on claim 32, Pouschine teaches the multidimensional model transformations include a measure identifying and measure dimension constructing transformation for analyzing the structure of each data source to identify entities that contain measure candidates and identifying a reasonable set of measures [col. 11, lines 49-53].

Regarding on claim 33, Pouschine teaches the multidimensional model transformations include a category dimension and level constructing transformation for analyzing each data source, and constructing dimensions and levels for the source model [col. 11, lines 58-61].

Regarding on claim 34, Pouschine teaches the multidimensional model transformations include a logical cube constructing transformation for constructing a set of logical cubes based on the dimensions in a corresponding data source [col. 11, lines 62-67].

4. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pouschine et al. (US. Patent No. 5,918,232) in view of Mellen-Garnett et al. (US. Patent No. 6,094,688) and further in view of Henninger et al. (US. Patent NO. 5,499,371).

Regarding on claim 22, Both Pouschine and Mellen-Garnett does not explicitly teach the business model objects include entities that exist as an implementation artifact of a many to many relationship, and many to many business joins associated with the entities; and the business model transformations include a many to many join relationship fixing transformation for locating the entities, and replacing the associated many to many business joins with a single business join. However, Henninger, teaches, "for each many-to-many relationship in the object model, a separate join table is added to the data base schema" [col. 8, lines 51-53]. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Henninger into Pouschine and Mellen-Garnett in order to provide for using an object model of an object-oriented application to automatically map information between an object-oriented application and a structured database, such as relational database.

Regarding on claim 23, Henninger teaches the business model objects include entities that are related via a 1:1 join relationship [col. 8, lines 48-51]; and

the business model transformations include an entity coalescing transformation for locating the entities that are related via a 1:1 join relationship, and coalescing the located entities into a single entity [col. 8, lines 48-51].

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is (703) 305-1949 or via e-mail: BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached at (703) 305-4393.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

- (703) 746-7238 [After Final Communication]
- (703) 746-7239 [Official Communication]
- (703) 746-7240 [Non-Official Communication]

Hand-delivered responses should be brought to:

Crystal Park II
2121 Crystal Drive
Arlington, VA 22202
Fourth Floor (Receptionist).


SHAHID AL ALAM
PATENT EXAMINER

Baoquoc N. To
September 20, 2002